

Introduction: Risk and 'Risk Society' in Historical Perspective

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Since the mid-1980s 'risk' has constituted a sort of banner to which the social sciences have rallied. It has produced an enormous variety of research in the political science, sociology and economics spheres. Concepts such as Patrick Lagadec's 'Risk Civilization,' Ulrich Beck's 'Risk Society,' or Anthony Giddens 'Risk Culture'¹ symbolize and underpin this movement, which, although polymorphic, is built around a common premise: the conviction that risk is a characteristic feature of contemporary societies and a central parameter when analyzing them. Our 'modernity' is seen as part of a radical break that occurred around the early 1970s born of the transition from an 'industrial' to a 'post-industrial' or 'risk society.' Humanity must now deal with a set of global risks that it has itself engendered through its scientific and technological activities for which the planet has become a vast laboratory. Paradoxically, in order to handle these 'risks,' our societies have an even greater need for science and technology, which alone can provide the conceptual and technical tools to enable mankind to grasp, identify, quantify, classify and guard against such risks. These transformations are also reflected in an unprecedented development of regulatory measures concerning administrative control and management systems at local, national and international levels.

What is the role of history in analyzing risks in the fields of science and technology? Given that fundamental societal evolutions as well as change and disruption over the long term are constantly being examined, recourse to history would seem only natural. Reflecting a type of analysis common in the social sciences,² the temporality constructed by Beck characterizes and differentiates between two successive periods. The first is that of an industrial society: a class society corresponds to a 'primary modernization' according to Beck's own terminology. In the second, that of risk society, we are supposed to live in a 'reflexive modernity.' To back up this historical analysis of a break created by risk society, Beck cites a large number of works of economic and social history in German from the 1970s and 1980s and underlines the importance of

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the sciences in the transformations he analyzes. However, on 'scientific/technical' questions, Beck's references are rather poor³ and since this seminal work, historical research is no longer a resource for the many sociologists and political scientists that have come in his wake and continued to brandish the concept of 'risk society.'

The explanation may lie in the small number of historical works that place the idea of risk at the center of their analysis. Moreover, when historical studies do actually deal with situations of danger or risk, they often lack visibility given the difficulty historians have in promoting their work outside narrow specialist circles. Furthermore, the ability of disciplines like sociology or political science to respond to social demands and to take part in forms of political action enables the fruits of their research to circulate far more easily, to influence long arbitration processes, and to come to the attention of others, thus helping them to fashion the present and the future and to gain a higher public profile.

Starting from this observation, we wish to show the importance of history in considering risk and the societal mutations to which it gives rise or in which it plays a central role. Ultimately, our aim is to stress the necessity not only to compile a history of 'risk,' but also to account for the emergence, development and uses of risk and 'risk society.'

Why is History so Important?

For Beck and other researchers in the social and political sciences, the Post-War boom and the triumph of capitalism ushered in a new model of social organization characterized by a higher degree of individualization. Beck sought to analyze the birth of this new society, the new problems posed by it and the political transformations needed to deal with such problems.⁴ The cornerstone of this analysis is a postulate: the 'radical' originality of a society he terms a 'risk society.' Successive crises resulting from the threats to health and the environment of scientific, medical or economic activities that emerged from the early 1970s on are evidence that we have embarked on a new era. Such issues remain at the forefront of public debate and have continued to mobilize the public and challenge the limits of expert opinion and regulations. Thus, in the preface to the second edition of the French translation of Ulrich Beck's work, Bruno Latour writes: 'when Risk Society first appeared, the cloud from Chernobyl was spreading over Europe; when this French translation appeared, catastrophe had just struck in Toulouse and in New York. Who still needs proof that we have well and truly entered the risk society?'⁵

Beck's work enjoyed great success. He inspired and stimulated the development of a body of work that took up the idea of risk society.⁶ From our point of view, these analyses had two major limitations. First, most of them contended that the risk society began around 30 years ago, at the end of the 1970s. Thirty years roughly corresponds to what sociologists would consider to be 'historical' time.⁷ Fixing this 'natural' period is interesting: it corresponds to what the average adult has experienced, i.e. what they can 'remember.' This time span corresponds to the individual and collective perception of a past which seems both familiar and sufficiently distant to invite consideration from a historical perspective. However, the historian's historical temporality is longer than 'the past thirty years' even within the context of a history of the present time.

The second limitation of this periodization lies in its postulating the 'radical originality' of the 'risk society.' This strikingly illustrates a tendency in the social sciences to highlight 'breaks with the past' and 'radical transformations.' By contrast, the accumulated practice of historians teaches them that radical, total and rapid breaks with the past, even in what are termed 'revolutions' are often simply recompositions.⁸ This does not mean of course that the historian necessarily and invariably argues that nothing new has taken place. Changes—sometimes brutal changes—do undoubtedly occur, but when there are important and radical transformations, the new society being fashioned remains the product of a certain history and is thus partly marked by long-term trends which need to be understood. Over and above the differences in disciplinary practice, what is at stake here is a conception of the way in which societies change and of what determines such transformations.

Indeed in choosing to cover a period of about 170 years and considering events that occurred before 1970, the articles presented in this volume seek to offer a series of reflections of the construction of a history of 'risk.'

Crossing Boundaries, Building a History of 'Risk'

Developing a history of risk requires adopting a bold position at the crossroads of a number of different disciplines. This is why we have decided to focus on and compare the problems, practices and experiences of the sociology of risk and expertise, the analysis of public policy, the social and cultural history of the sciences, medical technology and environmental history.

The first area of research tackled by the articles in this volume covers a wealth of literature dealing almost exclusively with sociology, political science and law, and they attempt to describe a 'risk society' characterized by breaks with the past and the fundamental changes that have occurred over the last three decades.⁹ A large body of research has already dealt with public mobilization, policy development, decision-making processes, expertise and its procedures, or contemporary regulatory systems. Such work has shown how important it is to focus on periods of crisis or public controversy involving the interaction of groups of actors with different agendas, forging concepts and deploying them through various actions, arguments, justifications and institutional and political realignments. While these works are undeniably valuable, they show little interest in the periods when such problems lie dormant. However, such crises constitute long-term phenomena in many cases¹⁰ that should invite serious analysis of the implementation of decisions and of the *modus operandi* of regulatory and risk management systems when they reappear or new problems emerge. Furthermore, while these works have stressed the increasingly important role of science in risk assessment and management, the manner in which knowledge and scientists have been studied is frequently unsatisfactory. In some cases we may even observe 'reductionist' practices: a reductionist vision of science, a tendency to treat 'experts' as 'scientists' or to argue in global terms that oppose 'experts' and 'laymen.'¹¹ However, a number of works on the history and sociology of science¹² have shown that when faced with the same scientific problem or the same risk, scientists from different backgrounds do not

necessarily adopt the same approaches. In such cases, analyses in terms of 'epistemic culture' as proposed by Karin Knorr-Cetina¹³ constitute a useful tool for getting to grips with and analyzing this type of configuration.

The second area of research dealt with here is lower profile material and comprises two types of historical contributions. First, the social and cultural history of science, technology and medicine has produced many works analyzing controversies, expertise, and regulation in the context of health and environmental risk situations. The most widely studied of these are undoubtedly air and water pollution in towns resulting from expanding urbanization and industrialization in the 19th and 20th century. Second, environmental history in its many forms, which has developed from the end of the 1970s on, beginning in the USA and to a lesser extent in Europe,¹⁴ is once again analyzing pollution-related health and environmental questions. Although the output of such research is less impressive than that produced by sociology, law or political science, the analyses proposed by historical works cover a broad spectrum: for example, the emergence and 'molding' of disciplines and scientific professions linked to certain types of hazards, divergence of perceptions, interpretations and difficulties of interaction between groups with different practices and interests when considering the same risk, the role of economic interests, the concrete effects on health and the environment, and the various geographic, social and temporal dimensions of hazards caused by human activities.

In building a 'history of risk' we consider that the use of hybrid approaches and resources must be combined with three other methodological requirements. The historization of the notion of 'risk' requires that we analyze a variety of different levels, and make comparisons. First, it would appear necessary to work on the emergence and shaping of the notion of 'risk,' which is not an intangible datum, but one that emerged out of a multitude of other notions used at other times and in various places and circumstances to refer to phenomena connecting economic and technological activities, health, environment and politics—e.g. 'danger,' 'dangerousness,' 'nuisances,' 'harmfulness,' 'harm.' Thus, as the constitution of problems, as well as the methods of studying and managing them, operate on various social, geographical and temporal levels, it is vital to analyze different scales. The constitution of issues of 'risk' has to be examined locally, at the level of the town or region for example, as well as nationally and internationally, with each level interacting with all the others. Likewise for timescales: a problem has its own characteristics at a given time and this needs to be understood. However, it also comprises different interlocking histories over varying timescales, which also have to be reconstructed. Last, comparison appears essential in order to achieve temporal or geographic perspective. The heuristic dimension of comparison takes on a particular value here as similar problems are often encountered in different places and at different times, but are not necessarily treated in the same way. Furthermore, comparison also proves particularly useful for tackling internationalization in terms of both the reality of 'risks' and how to handle them, and multiple forms of influence and resistance in accordance with national and international configurations at any given time.

In adopting these methodological approaches, the articles in this issue attempt to construct analytical frameworks and research proposals that may contribute to a historization and a denaturalization of risk. Here we propose to highlight four of these.

(1) Experts, Expertise and Regulatory Systems do Not Necessarily have the Centrality Conferred on Them by Their Public Profile and the Volume of Work Devoted to Them in the Social Sciences

One of the key elements of 'risk society' as it is generally conceived is the importance and centrality of experts, scientific and technical expertise, and regulatory systems. Experts and the scientific and technical expertise they can provide have the dual function of identifying and characterizing the ever-increasing number and complexity of 'risks' that human societies can be faced with, and proposing solutions to control and reduce them. Regulation then appears as the instrument of control and management of risk *par excellence*. Instead of considering systems of expertise and regulation as specific characteristics of 'present-day societies,' the articles comprising this issue instead seek to understand how experts, expertise and regulation differ from other forms of tackling and managing hazards caused by human activities, how and why they have assumed such importance and achieved such a high profile, and what the functions attributed to them are.

The increasing threat posed by industrial and urban development in the 19th century to health and the environment—several examples of which have been examined by Jean-Baptiste Fressoz—contributed to the emergence of the figure of the scientist-expert and the history of this process remains largely unwritten at present. However, existing research literature provides us with some interesting pointers. Various groups of scientists mobilized (or were mobilized) to tackle the problems of dangers to health and the environment created by human production. The most important—or at least the most prominent in terms of existing research literature—were hygienists, doctors, chemists and engineers.¹⁵ While these groups remain very important, at the turn of the (20th) century other groups appear, such as microbiologists and toxicologists in the inter-war years. The four case studies presented here clearly show that in addition to the variety of different fields there was also a wide range of situations and institutions in which expertise was used: the courtroom, the factory, local authorities—towns and regions—national governments, and from the end of the century, international conventions. While in the first part of the 19th century, the primary function of scientists and engineers was to guide the decisions taken by the courts and local or national authorities, the last third of the century saw the emergence of 'professional' scientist-experts. Their role was mainly to provide expertise, frequently in the context of the implementation of new laws and the development of new bodies that were intended, partly at least, to regulate potentially hazardous activities.¹⁶

As Fressoz shows, the 19th century also saw the emergence of systems for regulating dangerous activities. The timeline of the development of such systems varied depending on the activities and the countries. Throughout the 19th century, in the absence of national legislation (and when permitted by the state), local authorities, particularly in the big cities and the heavily industrialized regions, tended to take measures aimed at regulating activities perceived as dangerous (in particular air and water pollution).¹⁷ However, for diverse reasons, these measures frequently appeared to be inadequate,

leading to the enactment of national legislation and regulations. While some laws were enacted at the beginning of the 19th century, there was an increase in the number of such laws from 1870 onwards. There are many reasons why the development of regulatory systems gathered pace at the end of the 19th century. This was certainly a period in which the state extended its influence, while at the same time transforming its methods of management, in particular by developing new structures in which technical and scientific expertise played a vital role. The last third of the 19th century and the early years of the 20th century thus constitute the period in which the foundations were laid for a large number of national regulatory systems, particularly for food products, medicines and industrial pollution.

The large-scale development of certain activities in the inter-war years led to a number of major scandals—involving drugs, pesticides, etc.¹⁸—and to the development of new forms of regulation, characteristic of the second-half of the 20th century, such as certification or restrictions on use. The second-half of the 20th century witnessed two different trends. The first led to science acquiring an unprecedented social influence through its use in developing political–scientific–administrative bodies and its contribution to devising and providing management and government instruments¹⁹ essentially intended to build and strengthen a new social order on a worldwide scale. The second, closely linked to the first, concerned an unprecedented ‘boom’ in expertise and a shift in the locus of decision-making and action into the international arena. Although this ‘internationalization’ began in the 19th century, Soraya Boudia’s article shows that it was really only after the Second World War that the number of bodies—many of which are still active—increased rapidly in number and importance. In this context, experts’ ‘spheres of intervention’ became ever broader, comprising technical, social and political domains. Controversies and protests over the effects of atomic weapons, as well research carried out, clearly highlighted the changing nature and scale of the dangers with which humanity was confronted.

The emergence and apparent success of scientist–experts, expertise and regulation throughout the 19th and 20th century should not mask the many difficulties encountered. While the representatives of many scientific disciplines in many countries and in extremely diverse contexts, claimed legitimacy and relevance for the expertise they said they could provide, they had to face two types of interrelated problems. First, scientific expertise requires clear-cut, definite and unambiguous results. However, such clear-cut findings are not in keeping with traditional scientific practice where controversy, debate and uncertainty are not only normal but necessary.²⁰ The intrinsic difficulty for expertise of producing ‘incontrovertible’ knowledge was coupled with competition from other practices and other forms of logic at work in the identification, management and handling of risks. As Pierre-Antoine Dessaux reminds us, chemists had difficulty in being allowed to carry out food controls at the end of the 19th century and had to assimilate different older and well-established techniques used by other legally accredited professionals.

Such obstacles led scientists involved in expertise to develop a variety of strategies to deal with the attacks made on them and assert their presence and their science.²¹ These included setting ‘norms’ to ‘standardize’ expert practices in order to obtain, if not

identical results, then results with the fewest discrepancies possible. Perfecting standard expert practices and developing recognized systems for experts was an important activity among leading groups of experts. Depending on the context, emphasis was placed on the development and promotion of professional societies (UK, Germany) and/or the creation of professional diplomas or official accreditations. Legislation officially designated the experts themselves and the practices to be used by these experts (France). The difficulty for scientific expertise and for experts in adopting prominent positions and supplanting other types of practice is not exclusive to the 19th century. Their presence, professional survival and visibility all depended on the ongoing work that they carried out, which involved many compromises concerning what they were able to know or what they knew, and what those with whom they interacted—politicians and industrialists for the most part—were able to accept.

Furthermore, while regulatory systems impinged on more and more activities from the end of the 19th century, became more complex, took on an increasingly national and international dimension from the end of the Second World War, and while they expanded massively and acquired a high profile, other risk management methods continued to exist, especially legal action. While court cases are relatively visible—particularly through media coverage—professional practices, as Nathalie Jas observes in the case of pesticides, continue to compete with regulatory systems. This practice, which has relied on other forms of logic, has very often aimed at minimizing the reality of ‘risks’ and removing as far as possible the constraints that ‘risks’ have constituted once they have actually been recognized. One of these forms of practice has been the direct or indirect control of regulatory systems. As such control has increasingly proven difficult, evasive strategies have been put in place.²² What has been vital is the preservation of economic activity, and above all certain modes of economic development.

(2) Conversely, Economic Activities Often Play a Central Role Both in the Emergence of the Notion of Risk and in Shaping Ways of Identifying and Handling High-risk Dossiers

Placing scientific expertise and regulatory systems at the centre of the analysis has the major disadvantage of overestimating the importance of certain groups and their activities which, even though they have a high profile, do not necessarily play a key role. The articles presented here remind us how important it is not to minimize the roles of other actors: industrialists and those with specific visions of economic development at administrative and political levels. What emerges from the articles that follow is the centrality of economics within the processes of tackling and managing the human health and environmental hazards. Economic considerations in particular determine how such dangers are handled. As Dessaux shows in the case of food products in France at the start of the 20th century, setting up a regulatory system was primarily a response to economic imperatives for regulating and building markets. Health considerations were of secondary importance and had to barge their way onto an agenda imposed in order to structure the markets for food products. This approach, which aims to incorporate public health and environmental considerations into regulatory systems, was intended primarily to facilitate the operation and development of markets, and is

found in many places at many times. Thus, it is encountered at the heart of many European systems for handling 'risks,' particularly hazardous chemical risks.²³

In many cases risk management may be used to accommodate industrial and technological activities or to enable the development of new ones. As Boudia shows with the effects of radiation, rather than aiming to remove or limit dangers, expertise and regulation systems sought rather to make certain forms of economic development compatible with the expectations and demands of the public. In this perspective, as Jas relates in the case of pesticides in France, while scientific expertise and regulation took on great importance, this was probably because they represented a resource that could be easily harnessed to industrial and economic development²⁴ and had the advantage of a certain rhetorical efficacy.

This centrality of economic considerations and the ability of systems of expertise and regulation to preserve and even to facilitate certain types of economic and social developments, undoubtedly explain the success of these systems and the importance they have taken on. The fact that the protection of health and the environment has not ultimately been their primary function no doubt resulted in recurring long-term crises, the persistence of other forms of dealing with risk, in particular court cases, and the development of forms of radical protest that aim to draw attention to the dangers that are sometimes masked by expertise- and regulation-based systems.

(3) The History of Risk is that of Economic and Political Regimes

As the work of economists and sociologists has shown, risk is not an additional term used to refer to a danger: it is a particular danger, where no-one is at fault and the event in question cannot be foreseen or calculated. Existing research shows that it is a conception that was constructed historically in the sphere of maritime insurance when parties were confronted with the impossibility of assigning blame.²⁵ From the 16th century onwards, following the destruction of ships in storms, the answer to gaining some measure of control over natural hazards without penalizing commerce was the 'socializing' and 'pooling' of the danger. The notion of risk unfolded over the 19th century with the successive development of several types of insurance: agricultural insurance for natural disasters and social insurance for illness, with differences in forms and timescales in Germany, France and Great Britain. This was a general movement that masked the marked disparities in different national contexts. The success of these systems for identifying and managing danger is evidence both of a will to control the whims of nature in various sectors of human activity and of the development of the use of statistics and the calculation of probabilities in the public domain.²⁶

The efficiency of the notion of risk stems from the fact that it does not refer to a particular category of event but is a way of conceiving of, objectifying, measuring and managing risks. In the course of the 20th century, the development of insurance contributed to 'classifying' a wide range of dangers, floods and earthquakes as 'natural risks,' domestic accidents as 'household risks,' and diseases and poisonings as 'health risks.' Such a development of the notion of risk in the context of the rise of capitalism, underlines that all human activity entails inherent dangers and that the objective is not

to eradicate them but to control them by placing them within a framework and proposing reparation or compensation. Insurance techniques thus became a key tool in the management and reparation of risks. This solution had a decisive pragmatic and political advantage: it allowed an activity to be carried on even though it was dangerous. It called for a radical redefinition of fault and liability, which had been formulated using the vocabulary of insurers, erasing all political or moral connotations. Only abuses were sanctioned, i.e. damage caused by risks exceeding those judged to be 'normal' for a given activity on the basis of how this 'normality' was defined in the regulatory context of the time. In risk situations, it is less a matter of naming the guilty than of deciding who pays.

Risk then appears as a necessary evil, inherent to social life, something that must be controlled and whose source must be regulated. Political and economic choices at the origin of any given activity are rendered invisible, natural at most necessary. Yet despite their 'success,' risk-based approaches continued to encounter opposition and the question of liability remained a source of conflict throughout the 20th century, as is evident from the court cases involving tobacco manufacturers or oil slicks. In the 1950s, the global threat of a nuclear accident or war caused people to imagine scenarios for the future based on the calculation of probabilities of accidents which, granted, have never happened or are extremely rare, and are linked in long chains of cause and effect. These situations with global consequences—violent storms or terrorist threats—have tended to increase. They expose the limits of the concept of risk envisaged solely from an insurance perspective and invite a redefinition of the 'natural' and 'technological' dangers generally arising out of human activities. They have led to the return of causality in a big way and have already given rise to reconsideration of the terms of a risk situation.

The return of liability along with the precautionary principle at the end of the 1980s clearly reflects the dead-end in which an insurance-based approach to risk is now situated. However, while the issue of liability is an increasingly urgent one, the concept of risk is constantly highlighted and extended to ever-wider spheres of activity. Indeed the emergence of risk as a 'method' of managing problems and, the popularity of the concept of the 'risk society' among decision-makers and social scientists indicate how political these issues have become today.

(4) Shifting the Way We Look at Risk: The Importance of What is not Visible and of the Processes of Constructive Forgetting

History can participate in a movement that aims to significantly enrich, or even to profoundly transform our understanding of risk. While the social sciences have generally focused primarily on problems made public by the activities of those involved, it seems important to us today to refocus the debate on what does not become public, i.e. what remains invisible, whether this be related to the problems, mechanisms or the groups involved.

As such, if the work of history may be brought to bear on the ways in which public problems emerge, just as sociologists and political scientists do in the case of contemporary issues, the historian may seriously consider that the emergence in the public

arena of a risk-related issue is not linked solely to its objective importance—in terms of harmful consequences or the number of deaths. The examples of asbestos or tobacco which involved thousands of deaths over a relatively long period are sufficient to prove this. The questions that emerged over health, environmental or technological risks are only a part of the work carried out by actors into the scientific, political and media aspects in order to make a problem visible and bring it to public attention. Historians studying the issues surrounding risk can thus begin to question the mechanisms and the forms of social visibility of problems as well as the ways they are handled. In doing so, they may discover and account for actual or potential health and environmental damage resulting from science and technology that has been forgotten and/or never properly acknowledged publicly or politically. Historians may also discover ways of experiencing, tackling and handling the type of damage caused by human activity that has not been analyzed or referred to in policy debates or by the dominant powers. This movement from what was visible to what is less so, or to what is not visible at all, leads us to shift our perspectives on those involved, i.e. those who had borne these risks and who, due to a lack of cognitive, material or political resources did not manage to make themselves heard. They may also be groups, industrialists or government departments with the means to act in order to shape the way in which risks were handled, but who, for political reasons, in the light of what was at stake in a given situation, preferred not to appear on the public stage. This work on historical and social invisibility²⁷ may ultimately be extended to the study of what caused social and political neglect of certain issues, forms of action, or of human and non-human groups. The historian's objective would then be to analyze the mechanisms at work that made it possible to render risk phenomena invisible, or as invisible as possible, not just at the time when the damage occurred but also over shorter or longer periods. How did the neglect of health and environmental crises and risk situations come to be forgotten given their magnitude at the time they occurred? Why and how do crises appear to be 'radically' new at the time they occur when similar problems had arisen in the past, sometimes only 20 years previously? What were the workings and functions of the political process of forgetting that are manifestly at work where 'risks' were concerned?

This program could also highlight the extent to which the actual, potential or proven harm caused by human activity to health and the environment are the product of a history, i.e. choices made at various levels, at various times, by specific types of actor, to serve certain interests. It could highlight the fact that under the generic term of 'risk' lies the harsh realities of sometimes irreversible social and environmental damage, everyday suffering, feelings of injustice and impunity. The case of Bhopal²⁸ is a striking example of these phenomena. Thus, a history of risks could be a history of 'the suffering of humanity' faced with forms of economic, political and social organization.²⁹ Unlike the findings of contemporary research on risk, this type of history would stress the limits of social learning from past problems, the forms of dissimulation and the playing for time and the irresponsibility of medical institutions, political powers or technological businesses. The example of the relocation southwards of the asbestos and polluting chemical industries illustrates what we have in mind here. First, a series of observations:

- (i) The regulation of dangerous industrial activities in rich industrial countries has only taken place when there were alternative production solutions—new production facilities, replacement materials or simply relocation of the activity;
- (ii) A large portion of these activities were relocated to countries in the southern hemisphere with full knowledge of the health and environmental risks posed by them, even when legal action had started in industrialized countries;
- (iii) On-site facilities in southern hemisphere plants take no account of this knowledge;
- (iv) Governments and international health, environmental or regulatory bodies are aware of these situations but take no action in the vast majority of cases.

In reality, describing and researching these issues involves a serious analysis of social order which is rarely tackled by most research into risk. Questioning invisibility and its related mechanisms requires questioning the chains of responsibility and irresponsibility or the social and human cost of the economic and political organization processes at work in our societies, as well as underlining the importance of rethinking the concepts of domination and power.

Conclusion: Towards a History of ‘Risk Society’

To conclude, we wish to pause and consider the importance of analyzing the emergence of the concept of ‘risk society’ and thus underline the centrality of its political dimension. The 1980s, when Beck and Giddens were producing their first works, were marked first by a profound challenging of the forms of social management that had had their high point in the 1960s and 1970s and, second, by a certain disillusionment with existing regulations supposed to guard against health and environmental hazards linked to scientific and technical developments. The Thatcher era broke the trades union movement in Great Britain, the Reagan administration strengthened the US Government’s grip on the Environmental Protection Agency to the benefit of industry and the government of Helmut Kohl in Germany ignored the demands of German ecological movements. At that time sociology of risk sought not only to describe and analyze the rampant health and environmental crises, but also to account for the transformations that marked the end of the ‘class society’ and its mutation into a ‘risk society,’ on which Beck lays particular emphasis in his work. Through the concept of ‘risk society,’ Beck and Giddens offer not only an analytical tool and an interpretation of the society in which they live—they also outline new methods of social management they would like to see implemented in order to help counteract both the weakening of so-called ‘traditional’ management methods (trade unions, class struggle, political parties with clearly defined proposals) and the danger of modernity to the whole of humanity.³⁰

This political element in risk has been central for a large number of researchers whose works have dealt with risk society. However, on account of their academic discipline, political background or the subject of their analysis, they have given a diversity of meanings to the ‘political.’ In a large number of works on science and technology, politics was treated as a critique of technocratic methods used in decision-making processes and researchers lauded the methods used by groups of concerned citizens to

force their way into cases involving risk. Many social researchers have seized on risk as a means of devising tools that aim to reform such decision-making methods and, ultimately, to overhaul the methods for organizing science and technology on the one hand, and social issues on the other. This generated a large body of research into the role and impact of science on risk which came to dominate the field and dealt with participatory democracy, deliberative procedures (citizens' conferences and hybrid forums, for example) and standards for good governance in science as emphasized by Dominique Pestre. The aim was to get citizens to take part in political decisions by promoting innovative discussion and decision-making forums. These works gave rise to theories on good science and the co-production of more socially robust expertise, coming as it would from a wider consensus between scientists, politicians and lay people.³¹ Heralded as a panacea for all ills, deliberative procedures appeared to be the management method *par excellence* not only for many currently existing risks and for the conflicts that could arise from them, but also for socio-economic problems in general.

The concepts of 'risk' and 'risk society' had great success among policy-makers and managers who adopted the ideas of a new form of governance based on a broader social base for political decision-making and co-management with stakeholders in various social sectors. Some social scientists contributed to the design and implementation of this new form of governance. Another approach would adopt a radically different posture in relation to this new governance, i.e. question what it is, how it came to be (and to be deployed), and then go on to propose another history of societal mutations over the last 30 years with a more reflective and critical perspective.

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Notes

- [1] Lagadec, *Major Technological Risk*; Beck, *Risk Society*; Giddens, *Modernity and Self Identity*.
- [2] This way of reasoning, through successive models is, for instance, to be found in 'mode 1'/'mode 2' proposal: Nowotny *et al.*, *Re-thinking Science*.
- [3] See the critic of Beck's vision of sciences in the Brian Wynne's introduction of Lash *et al.*, *Risk, Environment and Modernity*.
- [4] Beck has continued to explain his conceptions see his last book: Beck, *The Cosmopolitan Vision*.
- [5] Beck, *Société du risque*, 7.
- [6] It would be very difficult to make an exhaustive list of these numerous works. The importance of this concept is visible in the content of a number of articles of journals such as *Social Studies of Sciences*, *Science & Technology Studies* or *Science, Technology and Human Values*, as well as in the creation of new journals specifically dedicated to risks such as *Risk Analysis*.
- [7] This is especially noticeable in research on the transformation of capitalism or medicine over the last 30 years: Boltanski and Chiapello, *The New Spirit of Capitalism* (first published in French in 1999). Dodier, *Leçons politiques de l'épidémie de sida*.

- [8] This is the case for instance for the 'scientific revolution.' Shapin, *The Scientific Revolution*.
- [9] Researchers working on the construction of public issues and on public policy have greatly contributed to the development of research on risk issues. Hilgartner, 'The Political Language of Risk,' 25; Hilgartner, *Science on Stage*; Gilbert, *Risques collectifs*.
- [10] Bosso, *Pesticides and Politics*; Boudia, 'Naissance, extinction et rebonds.'
- [11] Slovic, 'Perception of Risk'.
- [12] Krimsky and Wrubel, *Agricultural Biotechnology*; Roy, *Les experts face aux risques*.
- [13] Knorr-Cetina, *Epistemic Cultures*.
- [14] On the historiography of environmental history see: <http://www.h-net.org/~environ/historiography/historiography.html> and Mitman *et al.*, *Landscape of Exposure*.
- [15] Chirnside and Hamence, *The 'Practising Chemists'*; Hamlin, *A Science of Impurity*; Barles, *La ville délétère*.
- [16] Young, *Pure Food*.
- [17] Meisner and Tarr, 'Special Issue on Environmental History,' Büschenfeld, *Flüsse und Kloaken*; Tarr, *The Search for the Ultimate Sink*; Bowler and Brimblecombe, 'Control of Air Pollution in Manchester'; Thorsheim, 'Inventing Air Pollution'; Bernhardt, *Environmental Problems in European Cities*.
- [18] Whorton, *Before Silent Spring*.
- [19] Dahan and Pestre, *Les sciences pour la guerre*.
- [20] This debate already took place in the 19th century: Hamlin, 'Scientific Method,' 485.
- [21] Jasanoff, *States of Knowledge*; Halfmann, 'Boundaries of Regulatory Science.'
- [22] Markowitz and Rosner, *Deceit and Denial*; Egilman *et al.*, 'Over a Barrel.'
- [23] Heyvaert, 'Reconceptualizing Risk Assessment.'
- [24] Abraham and Reed, 'Progress, Innovation and Regulatory Science,' 337.
- [25] Giddens, lecture 3. http://news.bbc.co.uk/hi/english/static/events/reith_99.
- [26] Desrosières, *La politique des grands nombres*; Porter, *Trust in Numbers*.
- [27] On the importance to work on invisibility phenomena see: Honneth, 'Invisibility.'
- [28] On Bhopal see: Morhouse and Subramaniam, *The Bhopal Tragedy*; Lapierre and Moro, *Five Past Midnight in Bhopal*.
- [29] For examples of works taking into account this dimension see: Rosner and Markowitz, *Dying for Work*; Vallianatos, *Harvest of Devastation*; Murray, *Cultivating Crisis*; Nicollini, *Il pane attossicato*; Warren, *Brush with Death*.
- [30] Thus Beck explained: 'Consider the intellectual situation in Europe after 1989. A whole world order had broken down. What an opportunity to adventure into the new! But we stick to old concepts and ideas, and make the same mistakes. There is even a kind of left protectionism and a switch of position. As Anthony Giddens has pointed out, radical socialism has become conservative and conservatism has become radical. We have to rediscover this crazy, mad-cow disease world sociologically, and the script of modernity has to be rewritten, redefined, reinvented. This is what the theory of world risk society is about.' Beck, 'Politics of Risk Society,' 9.
- [31] Callon *et al.*, *Agir dans un monde incertain*; Jasanoff, *States of Knowledge*.

References

- Abraham, John and Tom Reed. 'Progress, Innovation and Regulatory Science in Drug Development: The Politics of International Standard-Setting.' *Social Studies of Science* 32, no. 3 (2002): 337–69.
- Barles, Sabine. *La ville délétère: médecins et ingénieurs dans l'espace urbain XVIIIe–XIXe siècles*. Seyssel: Champ Vallon, 1999.
- Beck, Ulrich. 'Politics of Risk Society.' In *The Politics of Risk Society*, edited by Jane Franklin. London: Polity Press, 1998, 9–22.
- . *Risk Society: Towards a New Modernity*. Newbury Park, CA: Sage, 1992 (first published in German in 1986).

- . *La société du risque. Sur la voie d'une autre modernité*. Paris: Aubier, 2001.
- . *The Cosmopolitan Vision*. Cambridge: Polity, 2006 (first published in German in 2004).
- Bernhardt, Christoph, ed. *Environmental Problems in European Cities in the 19th and 20th Century*. Münster: Waxmam, 2004.
- Boltanski, Luc and Eve Chiapello. *The New Spirit of Capitalism*. New York: Verso, 2005 (first published in French in 1999).
- Bosso, Christopher. *Pesticides and Politics: The Life Cycle of a Public Issue*. Pittsburg, PA: University of Pittsburg Press, 1987.
- Boudia, Soraya. 'Naissance, extinction et rebonds d'une controverse scientifique : les dangers de la radioactivité pendant la guerre froide.' *Mil neuf cent. Revue d'histoire intellectuelle*, no. 25 (2007): 157–70.
- Bowler, Catherine and Peter Brimblecombe. 'Control of Air Pollution in Manchester prior to the Public Health Act, 1875.' *Environment and History* 6 (2000): 71–98.
- Büschendorf, Jürgen. *Flüsse und Kloaken: Umweltfragen im Zeitalter der Industrialisierung (1870–1918)*. Stuttgart: Klett-Cotta, 1997.
- Callon, Michel, Pierre Lascoumes and Yannick Barthe. *Agir dans un monde incertain. Essai sur la démocratie technique*. Paris: Le Seuil, 2001.
- Chirnside, Ralph and Jack Hamence. *The 'Practising Chemists': A History of the Society for Analytical Chemistry, 1874–1974*. London: The Society for Analytical Chemistry, 1974.
- Cohen, Yves. *Organiser à l'aube du Taylorisme: la pratique d'Ernst Mattern chez Peugeot 1906–1919*. Besançon: Presses Universitaires Franc-comtoises, 2001.
- Dahan, Amy and Dominique Pestre, eds. *Les sciences pour la guerre, 1940–1960*. Paris: Presses de l'EHESS, 2004.
- Desrosières, Alain. *La politique des grands nombres: histoire de la raison statistique*. Paris: éditions de la découverte, 1993.
- Dodier, Nicolas. *Leçons politiques de l'épidémie de sida*. Paris: Editions de l'EHESS, 2003.
- Douglas, Mary and Aaron Wildavsky. *Risk and Culture. An Essay on the Selection of Technological and Environmental Dangers*. Berkeley, CA: University of California Press, 1982.
- Egilman, David S. and Susanna Rankin Bohme. 'Over a Barrel: Corporate Corruption of Science and its Effects on Workers and the Environment.' *International Journal of Occupational and Environmental Health* 11, no. 4 (2005): 331–337.
- Giddens, Anthony. *Modernity and Self Identity: Self and Society in the Late Modern Age*. Cambridge: Polity Press, 1991.
- Gilbert, Claude. *Risques collectifs et situations de crises. Apports de la recherche en sciences humaines et sociales*. Paris: L'Harmattan, Collection Risques Collectifs et Situations de Crise, 2003.
- Halfmann, Willem. 'Boundaries of Regulatory Science. Eco/toxicology and Aquatic Hazards of Chemicals in the US, England, and the Netherlands, 1970–1995.' Ph.D. diss., University of Amsterdam, 2003.
- Hamlin, Christopher. *A Science of Impurity: Water Analysis in Nineteenth Century Britain*. Berkeley, CA: University of California Press, 1990.
- . 'Scientific Method and Expert Witnessing: Victorian Perspectives on a Modern Problem.' *Social Studies in Science* 16, no. 3 (1986): 485–513.
- Heyvaert, Veerle. 'Reconceptualizing Risk Assessment.' *Review of European Community & International Environmental Law* 8, no. 2 (1999): 135–43.
- Hilgartner, Stephen. 'The Political Language of Risk: Defining Occupational Health.' In *The Language of Risk: Social Conflict in Occupational Health*, edited by Dorothy Nelkin. Beverly Hills, CA: Sage, 1985, 25–62.
- Hilgartner, Stephen. *Science on Stage: Expert Advice as Public Drama*. Stanford, CA: Stanford University Press, 2000.
- Honneth, Axel. 'Invisibility: On the Epistemology of "Recognition".' *Supplement to the Proceedings of the Aristotelian Society* 75, no. 1 (2001): 111–26.

- Jasanoff, Sheila. *States of Knowledge: The Co-production of Science and Social Order*. London: Routledge, 2004.
- Knorr-Cetina, Karin. *Epistemic Cultures. How the Science Makes Knowledge*. Cambridge, MA: Harvard University Press, 1999.
- Krimsky, Sheldon and Roger Wrubel. *Agricultural Biotechnology and the Environment*. Chicago, IL: University of Illinois Press, 1996.
- Lagadec, Patrick. *Major Technological Risk: An Assessment of Industrial Disasters*. Oxford: Pergamon Press, 1982 (first published in French in 1981).
- Lapierre, Dominique and Javier Moro. *Five Past Midnight in Bhopal: The Epic Story of the World's Deadliest Industrial Disaster*. New York: Warner Books, 2003.
- Lash, Scott, Bronislaw Szerszynski and Brian Wynne, eds. *Risk, Environment and Modernity*. Thousand Oaks, CA: Sage, 1996.
- Markowitz, Gerald and David Rosner. *Deceit and Denial: The Deadly Politics of Industrial Pollution*. Berkeley, CA: University of California Press, 2002.
- Meisner Rosen, Christine and Joel A. Tarr, eds. 'Special Issue on Environmental History.' *Journal of Urban History* 20, no. 3 (1994).
- Mitman, Gregg, Michelle Murphy and Christopher Sellers, eds. *Landscape of Exposure: Knowledge and Illness in Modern Environment*. *Osiris*, Vol. 19. Chicago: University of Chicago Press, 2004.
- Morhouse, Ward and Arun Subramaniam. *The Bhopal Tragedy: What Really Happened and What It Means for American Workers and Communities at Risk*. New York: Council on International and Public Affairs, 1986.
- Murray, Douglas. *Cultivating Crisis: The Human Cost of Pesticides in Latin America*. Austin, TX: University of Texas Press, 1994.
- Nicollini, Nicoletta. *Il pane attossicato: storia dell'industria dei fiammiferi in Italia, 1860–1910*. Bologna: Documentazione Scientifica Editrice, 1997.
- Nowotny, Helga, Peter Scott and Michael Gibbons. *Re-thinking Science. Knowledge and the Public in an Age of Uncertainty*. Cambridge: Polity Press, 2001.
- Porter, Theodore M. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton: Princeton University Press, 1995.
- Rosner, David and David Markowitz. *Dying for Work: Workers' Safety and Health in Twentieth Century America*. Bloomington, IN: Indiana University Press, 1987.
- Roy, Alexis. *Les experts face au risque : le cas des plantes transgéniques*. Paris: PUF, 2001.
- Shapin, Steven. *The Scientific Revolution*. Chicago, IL: University of Chicago Press, 1996.
- Slovic, Paul. 'Perception of Risk.' *Science* no. 236 (1987): 280–5.
- Tarr, Joel A. *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*. Arkon, OH: University of Arkon Press, 2004.
- Thorsheim, Peter Joseph. 'Inventing Air Pollution: The Social Construction of Smoke in Britain, 1880–1920.' Ph.D. diss., University of Wisconsin, 2000.
- Vallianatos, Evagellos. *Harvest of Devastation: The Industrialization of Agriculture and its Human and Environmental Consequences*. New York: Apex Press, 1994.
- Warren, Christian. *Brush with Death: A Social History of Lead Poisoning*. Baltimore, MD: The John Hopkins University Press, 2001.
- Whorton, James. *Before Silent Spring. Health and Pesticides in Pre-DDT Area*. Princeton, NJ: Princeton University Press, 1974.
- Young, James Harvey. *Pure Food: Securing the Federal Food and Drug Act of 1906*. Princeton, NJ: Princeton University Press, 1985.

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